Geography is Destiny

Variation in Medical Care Processes in Small Areas

A Few Key Points:

1. Medical Care in the U.S. costs 14+% of GDP
2. WHO report lists American health care as “most costly” (“We’re Number One!”) with an overall ranking of 32nd in the world!
3. IOM study reports 50,000 -100,000 Americans are killed each year by medical errors.
4. Famous Philosopher: “American medicine is the best there is . . .

   . . . something must be done about

Objectives:

1. Understand the concern of those who would improve American medicine regarding the need to ‘tamp down’ variation.
2. Outline the methodology of determining the degree of variation in medical care.
3. Describe the degree of variation in medical care across the country.
4. Discuss use of this method and these data to reduce variation and to improve medical care.

Objective #1: Understand the 'need to tamp down' variation.

Industrial Model of Quality Improvement:

1. Process variation yields Outcome variation
2. Outcome improvement depends upon reducing process variation (allows planning for change and measuring effect of change).
3. First step in Outcome improvement is to determine process variation and 'tamp it down'.

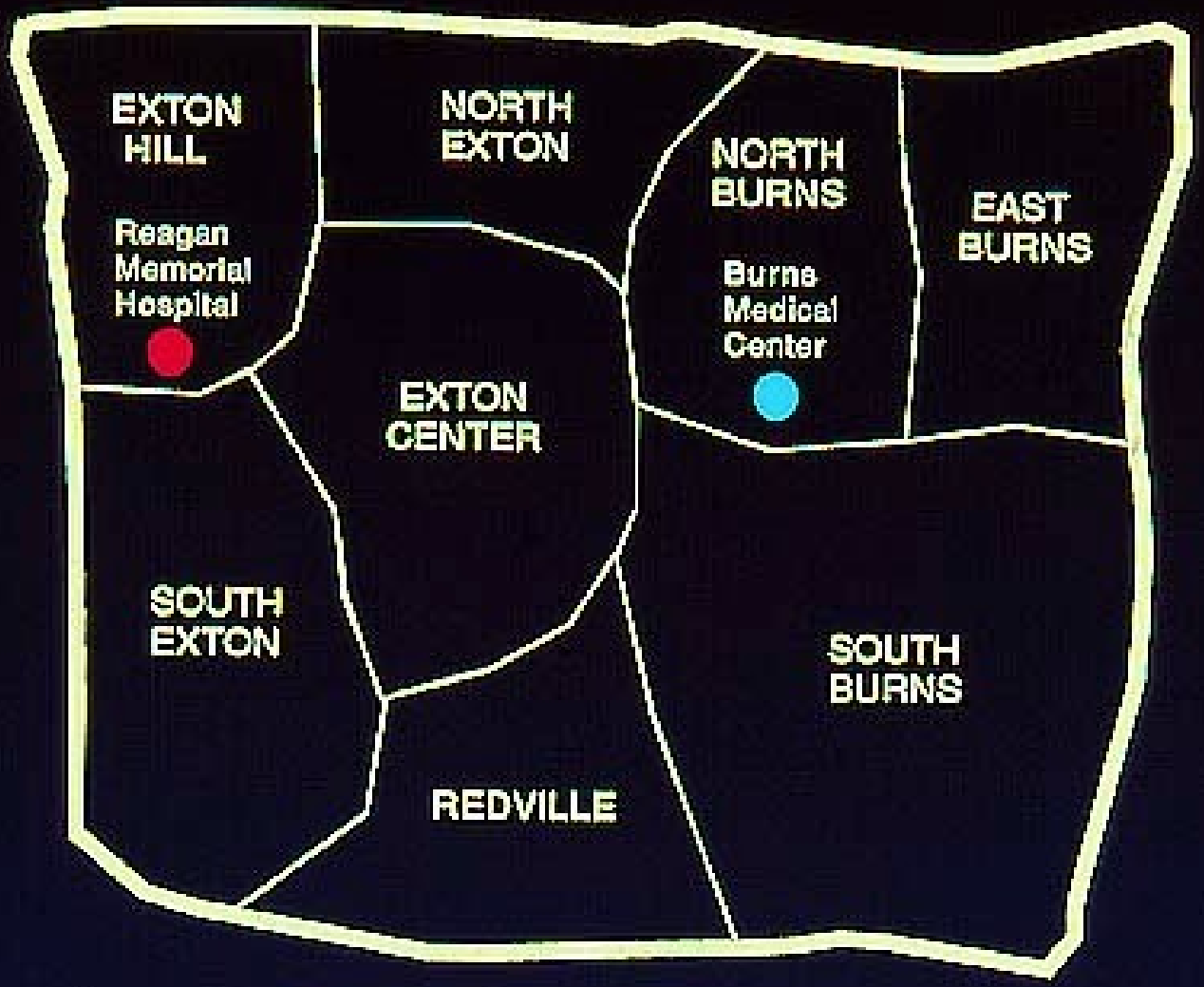
(this is 'mechanistic' and Newtonian – and

Objective #2: Understand methods of determining variation in care.

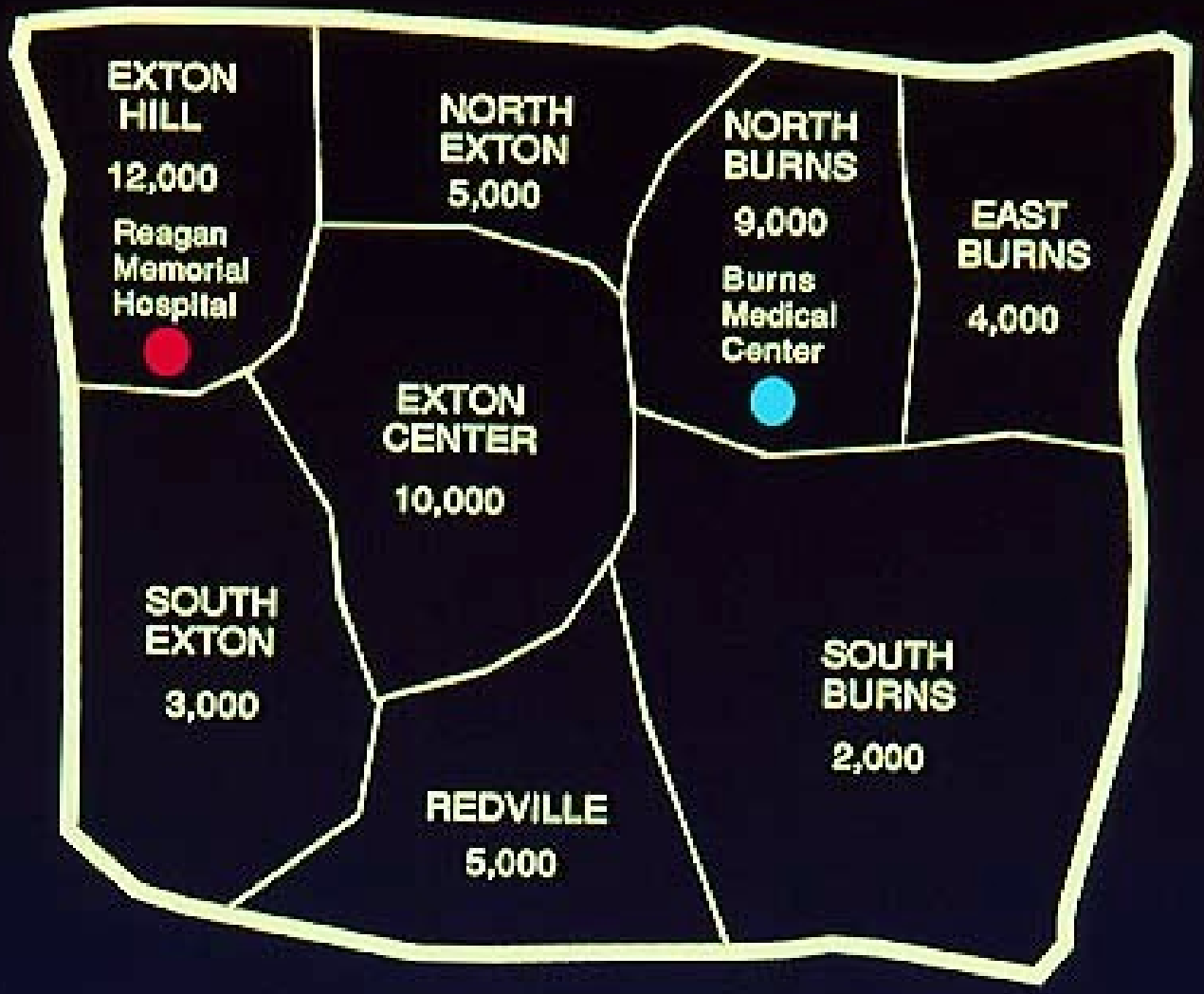
Small area variation

1. Geographic areas
    a) Cities and towns
    b) MSAs
    c) HRRs
2. Patient care linked to home of record (not where the care was delivered !)

SMALL AREA ANALYSIS

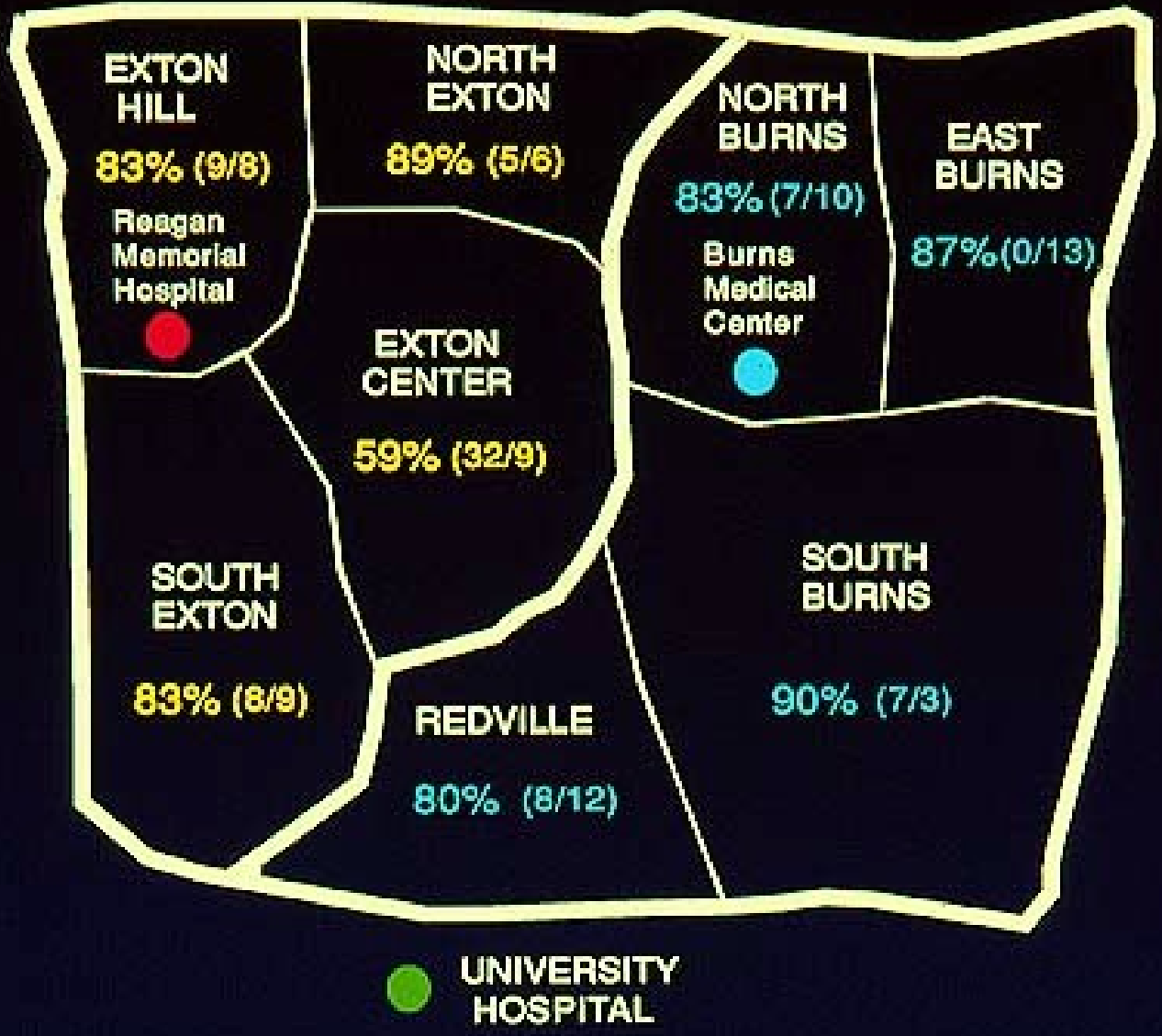


SMALL AREA ANALYSIS

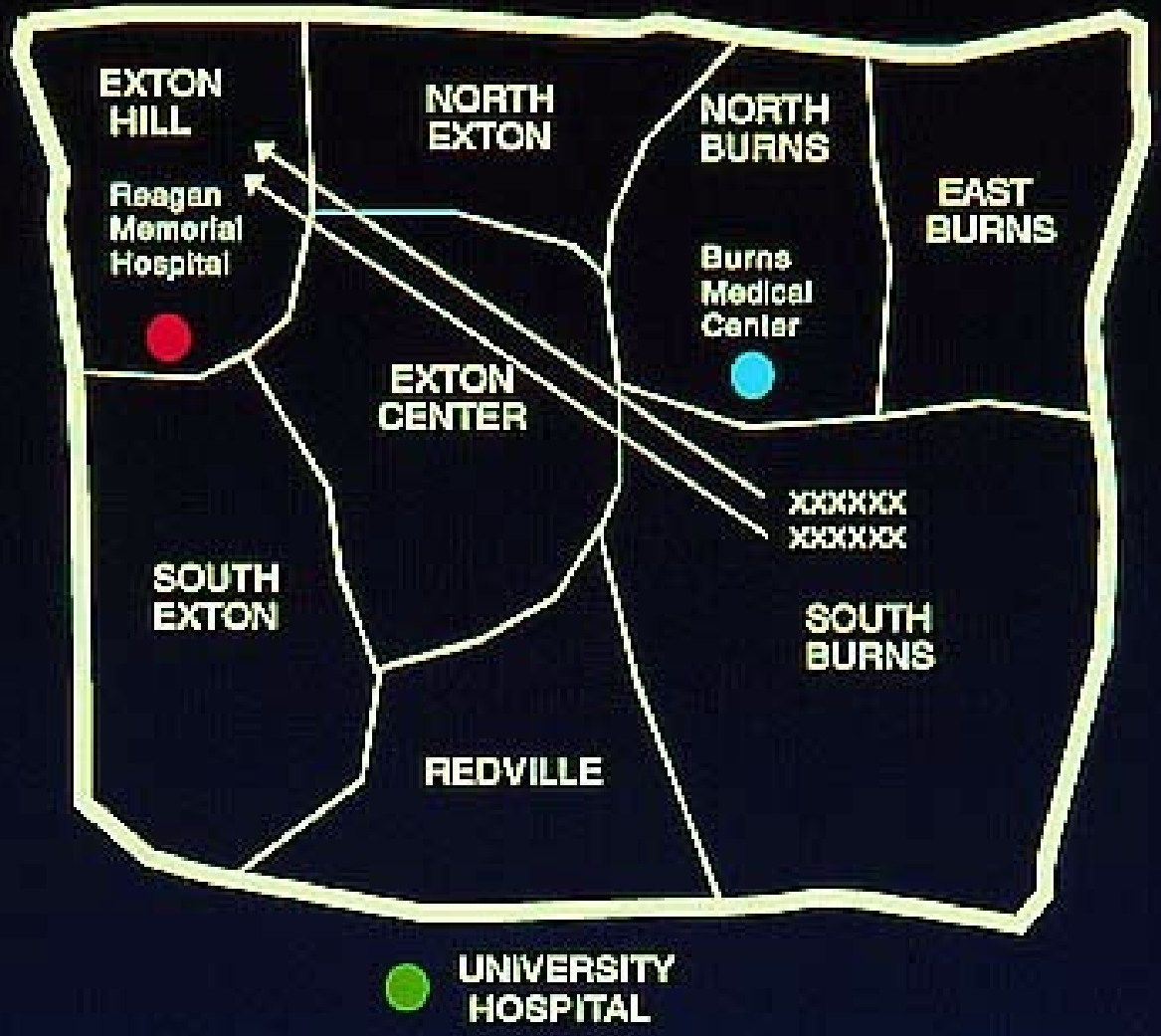


TOTAL POPULATION 50,000

SMALL AREA ANALYSIS

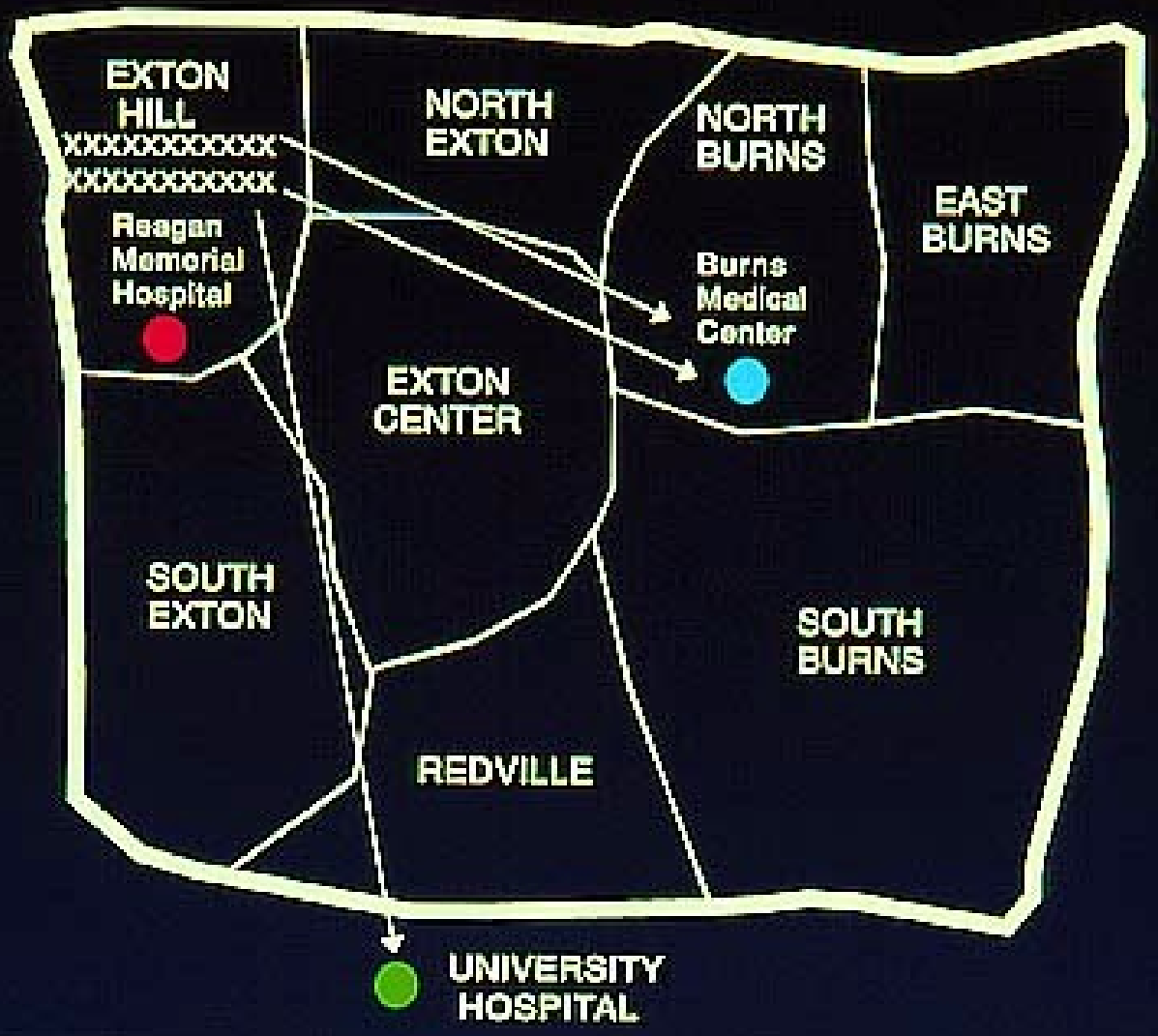


SMALL AREA ANALYSIS
BORDER CROSSING



OUT OF AREA RESIDENTS ARE NOT COUNTED IN EXTON HILL

SMALL AREA ANALYSIS
BORDER CROSSING



OUT OF AREA HOSPITALIZATIONS ARE COUNTED IN EXTON HILL

Objective #2: Understand methods of determining variation in care

- Small area variation (small area analysis; SAA)

1. Geographic areas

2. Patient care linked to home of record

3. Comparisons of structure, process & outcome

   a) Structure: Practitioners, beds, etc.

   b) Process: Tests, treatments, procedures, funding, etc.

   c) Outcome: Mortality, morbidity, functional status, etc.

Objective #3A: Understand the degree and types of variation in care

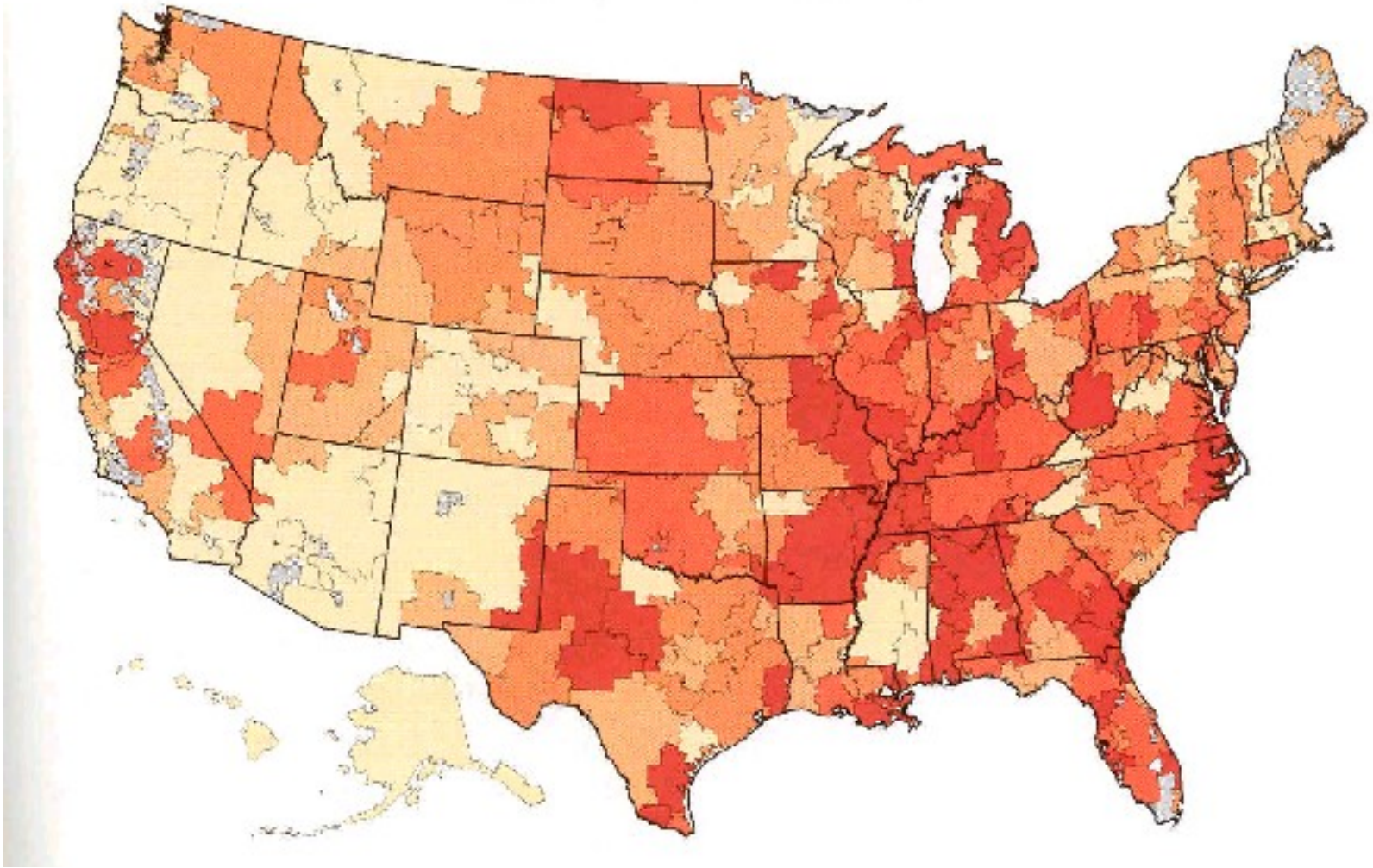
1. Significant variation seen

“Relationships”:

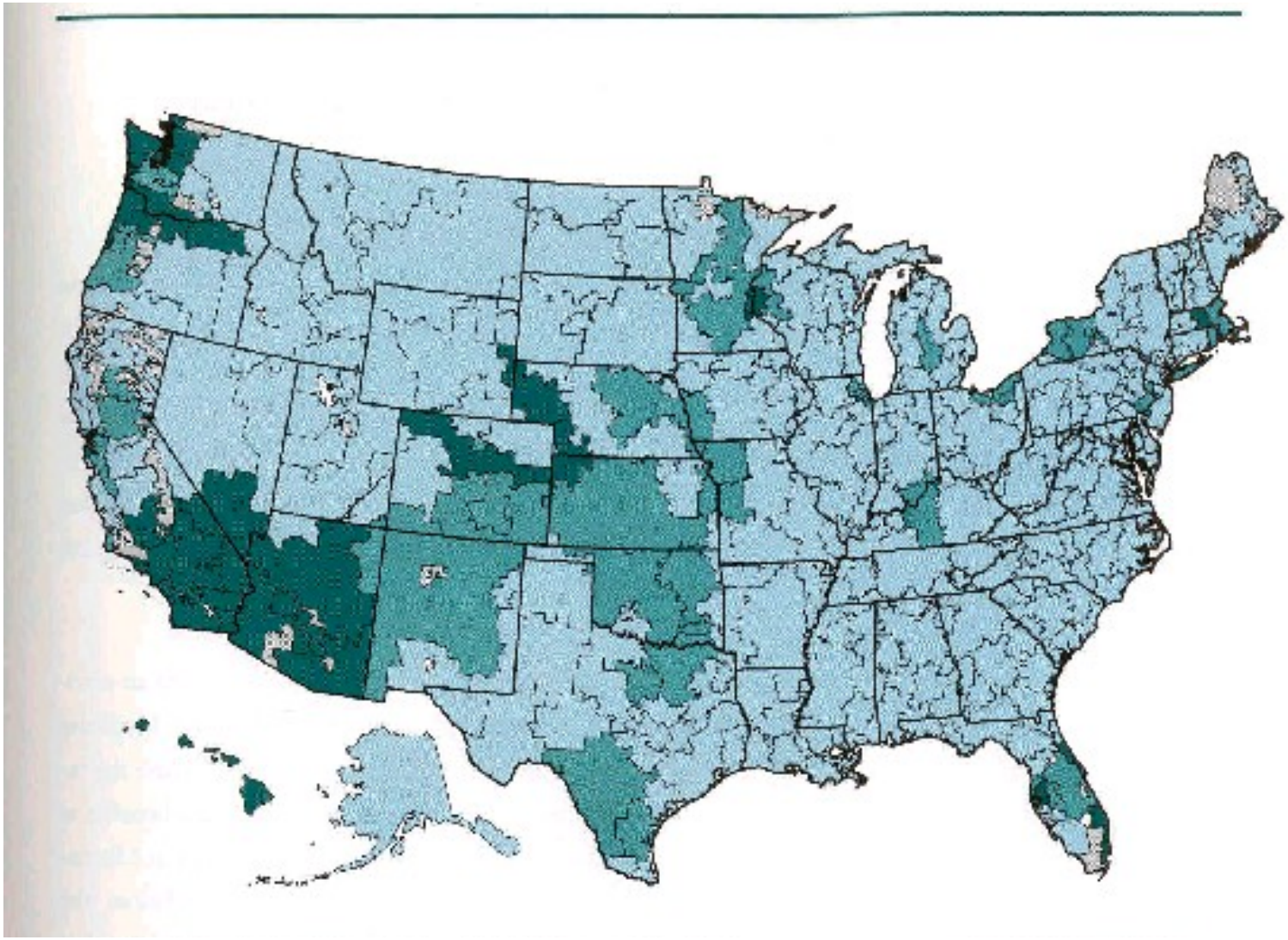
1. Positive correlations (after age and gender adjustment) for higher use of resources and:

    a. Male Gender in youth & middle age
    b. Northeast
    c. Urban locality
    d. More physicians, beds, etc.
    e. Caucasian
    f. Insurance coverage

1. Dartmouth Atlas codified these differences.



CABG Rates in Managed Care Populations



Medicare Enrollment in Managed Care Organizations

“Other Relationships”:

1. “High-use” and “low-use” areas are not homogenous.
2. “Average-use” areas do not contain “average-use” physicians.
3. Physicians who are “high-users” for one condition are not always high users for all conditions.

The variation is variable !

Objective #3A: Understand the degree and types of variation in care

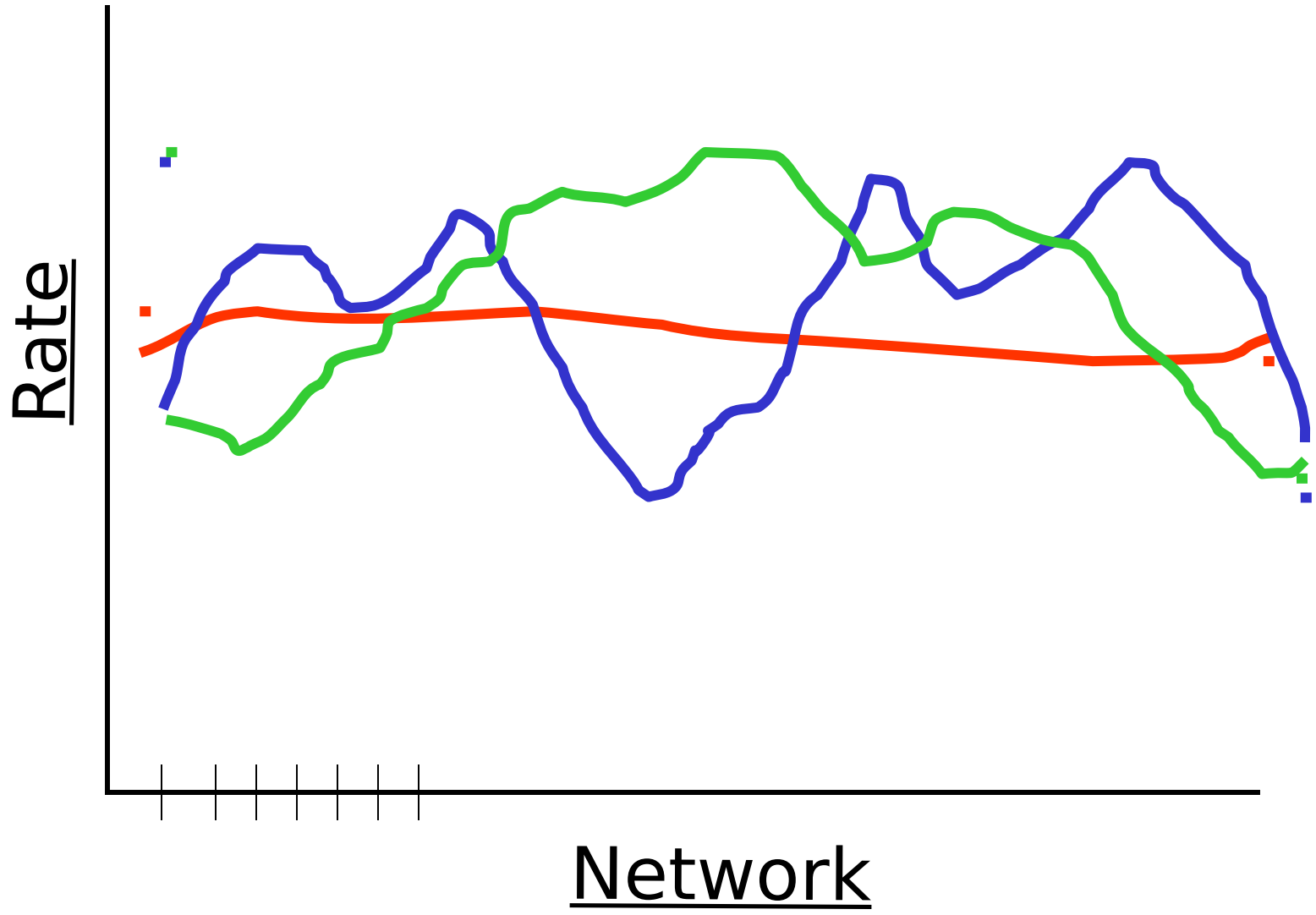
1. Significant variation seen
2. Multiple hypotheses for cause (and remedy)

“Causes”:

1. Pecuniary interests of the physicians
2. Racism
3. Sexism
4. Other “venalisms”

Facts:

1. VA variation similar to Dartmouth study


Rate
Network

Objective #3**B**: Results.

- Variation parallels previous reports
- High:Low rate MSAs vary by almost 3-fold

Questions:

- Which rate is ‘right’ ?
- What can we do with this information?

Use by Organizations:

Maine Medical Foundation

HCFA (NY State Cardiac Surgery)

NENE Cardiac Surgery Group

VHA (NSQIP, checklist, etc.)

CMS (PROs, QIOs, etc.)

Attributes of successful use:

Data is valid and accepted

Data is presented w/o ‘finger-pointing’

Data is given to ‘real’ owners

Time is allowed for change

Conclusions:

Large Data bases have great potential to improve population health, practice variation and quality of care to cohorts and individual patients . . .

. . . but, these data must be used in a manner that allows and accelerates that positive change – not to ‘find the guilty’ or to mete out punishment.